

Work Order ID 132264

Tuesday, May 05, 2015 10:03:27 AM

132264

Page 1

Item ID: D407-667-205

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Item Name: Aft Crosstube - High 407

Stop ***NS2***

Start Date: 5/5/2015 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 5/5/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: MCS Date: MAY 05 2015 Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D407-667-245	G								
100	Document Control	0.00							
100	DOCUMENT CONTROL								
DC	Memo	0.00							
Doc.Control -USB or Paperwork	Photocopy bluefile and create labels as per PPP D407-667-205 CHG009								
110	Pick Kit	0.00							
110	Packaging								
Packaging	Memo	0.00							
Packaging									
120		0.00							
120	BENDING MACHINE - CROSSTUBES								
CNC Bend 1	Memo	0.00							
CNC Delta 100 Bender	1-Bend tube as per Dwg D407-667-245 using CNC bender program 407 Aft and Folio 21								

DAS
6
9-89

DAS
6
9-89

DAS
02
9-89
JUN 09 2015

BL

15/05/26

JW

15-05-21

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Item ID: D407-667-205

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Item Name: Aft Crosstube - High 407

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Start Date: 5/5/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 5/5/2015 Req'd Qty: 1.00

1

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Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	QC15- Crosstube Dimensional Check	0.00							346 38 9-89
130									
QC	Memo	0.00							
Quality Control									

DAS
49
9-89

15/05/27

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Item ID: D407-667-205

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N900040100Setup Start ***NS1***

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Start Date: 5/5/2015 Start Qty: 1.00

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Cust Item ID:

Required Date: 5/5/2015 Req'd Qty: 1.00

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Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	Crosstubes	0.00							
140									
Crosstubes									
Crosstubes									
	Memo	0.00							
	***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** VERIFIED BY: <u>MM</u> *****								
	1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill all (3) top holes. Holes facing inboard. Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245								
	***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** VERIFIED BY: <u>MM</u> *****								
	2- Drill fwd rivet holes using drill Jig DT8787 fwd as per Dwg D407-667-245. Note: FWD side has 3X top holes facing inboard.								
	3- C'sink holes as per dwg D407-667-245. Allow rivet to sit below surface to compensate for paint.								
	4- Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins. Drill ONLY 2 top holes ONLY plug most bottom hole to prevent accidental drilling. Drill holes and ream using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill only the top (2) holes. Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245								
	***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** VERIFIED BY: <u>MM</u> *****								
	5-Drill aft rivet holes using drill Jig DT8787 aft as per Dwg D407-667-245.								

BL 15/05/27

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Item ID: D407-667-205

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Revision ID:

Item Name: Aft Crosstube - High 407

Stop ***NS2***

Start Date: 5/5/2015 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 5/5/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Drill only the top (2) holes.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: mark*****

6- C'sink holes as per dwg D407-667-245. Allow rivet to sit below surface to compensate for paint.

7- Scribe tube to identify on the inner chamfer in the cuff D# and B#

8-*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***Debur
& Inspect for surface damage. Repair damage within limits as per Dwg D407-667-245

150

QC5- Inspect part completeness to step on W/O 0.00

150

QC

Quality Control

Memo 0.00

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

DAS
49
9-89
15/05/29

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Item ID: D407-667-205

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Aft Crosstube - High 407

Stop

NS2

Start Date: 5/5/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 5/5/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

160

0.00

160

HandFXtube

Memo

0.00

Hand Finishing Crosstubes

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1- CLEAN CROSSTUBE WITH WASH'N WIPE

DAS
41
9-89

15-6-1

180

Outsource process - NDT per QSI038 4.1

0.00

180

Outsource2

Memo

0.00

Outsource process - NDT

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Liquid Penetrant Inspection as per QSI 0380

Issue P/O: 28657 LPI as per ASTM 1417

Level 2 Attach copy of NDT results to work order

C2

JUN 02 2015

①

190

Packaging

0.00

190

Packaging

Memo

0.00

Packaging

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

Ensure copy of NDT results attached to work order.

1X 8015-06-02

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Item ID: D407-667-205

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N900040100

Setup Start

NS1

Revision ID:

Item Name: Aft Crosstube - High 407

Stop

NS2

Start Date: 5/5/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 5/5/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

200

QC5- Inspect part completeness to step on W/O

0.00

200

QC

Memo

0.00

Quality Control

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

DAS
38
9-89

JUN 02 2015

204

0.00

204

HandFXtube

Memo

0.00

Hand Finishing Crosstubes

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1- PRESSURE WASH AND THEN USE WASH'N WIPE TO CLEAN
CROSSTUBE BEFORE CHEMICAL CONVERSIONDAS
41
9-89

15-6-1

206

QC7-Inspect Chemical Conversion Coat

0.00

206

QC

Memo

0.00

Quality Control

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

CN 15-06-02

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Item ID: D407-667-205

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: Aft Crosstube - High 407

Stop ***NS2***

Start Date: 5/5/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 5/5/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210	SprayPaint	0.00							DAS
210									41
SprayPaint	Memo	0.00				<u>1</u>			<u>9-89</u>
Spray Painting	*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***								15-6-4

1-Prime inside and outside crosstube as per DEO D407-667-245 and QSI 005 4.2

PRIME: 131846Start Time: 700Fininsh Time: 800

Mask underside of crosstube as shown

2-Paint outside crosstube with White Imron as per QSI 005 4.2

PAINT: 131599Start Time: 430Finish Time: 515

3- Apply clear coat as per dwg

Clear Coat Batch: 131483

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Reference:

Stop *NR2*

[illegible]

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Item ID: D407-667-205

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Revision ID:

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Stop ***NS2***

Start Date: 5/5/2015 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 5/5/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230	Crosstubes	0.00							DAS
230						<u>1</u>			41
Crosstubes	Memo	0.00							9-89
Crosstubes	1- Install chafing shield as per D407-667-245 using DT10096 to establish 8.90 dimention.Top holes should be facing up. ****Ensure chaffing is to be position "overlap" AFT**** A/R Proseal 890 Batch: <u>132226</u> EXP: <u>12/15</u>								15-6-5
	2- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe								
	3-Install support with Scotch-Weld DP460 and install clamps as per Dwg D407- 667-245 using installaiton jig DT9025. Torque clampsas per dwg A/R Scotch-Weld DP460 Batch: <u>131539</u> EXP: <u>2/16</u> ***LET CURE FOR 24 HOURS*** CURE TIME: START: <u>15-6-5</u> FINISH: <u>15-6-6</u>								
	4-Install nut plates as per Dwg D407-667-245. Touch-up rivet heads with Imron paint.								

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[illegible]

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Item ID: D407-667-205

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: Aft Crosstube - High 407

Stop ***NS2***

Start Date: 5/5/2015 Start Qty: 1.00

1

Cust Item ID:

Required Date: 5/5/2015 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

270

270

Packaging

Packaging

0.00

Memo

0.00

Packaging

Identify and in kanban rack
Location: EG 97DAS
6
88

15-06-09

280

280

QC

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

Quality Control

MCS

JUN 10 2015

MF
15-6-9

Picklist Print

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Page 1

Work Order ID: 132264

132264

Parent Item: D407-667-205

D407-667-205

Parent Item Name: Aft Crosstube - High 407

Start Date: 5/5/2015

Required Date: 5/5/2015

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:C 05.09.02 Add holes for compatibility with Bell SkidtubesKJ/JLM
IPP Rev:D Added Magnobond,Rubber Cushion & Clamps 07-02-19
JLM

CHANGE TO CHG 005 - IF USING D2894-1 B35578 OR GREATER

IPP Rev:E 08-05-22 add comment in seq. 6 and QC15 and QC5 DD verified by:EC

IPP Rev:F 08-06-12 add comment in seq. 24 DD verified by:EC

IPP Rev:G 08-08-19 revE as per dwg DD verified by:EC

IPP Rev H 09.01.06 ECN 08-562 EC verified by:DD IPP Rev:I

10.04.07 revise route seq. in bom DD verified by:JLM IPP Rev J 11.04.26

removed abrasion strip ecn 11-551 EC verified

by:DD

IPP REV:K

11.10.03 DEO D407-667-245-F-2 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D407-667-205TRN

Manufactured No

110

Each

4.0000

1

(1)

D407-667-205TRN

Crosstube Turning Detail

132269

**

1

BL 15/05/26

Location

Loc Qty

Loc Code

LG

4

129300

1

129301

1

129302

1

129303

1

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Work Order ID: 132264

Parent Item: D407-667-205

Parent Item Name: Aft Crosstube - High 407

132264

D407-667-205

Start Date: 5/5/2015

Required Date: 5/5/2015

Start Qty: 1.00

Required Qty: 1.00

D2873-043

Manufactured No

230

Each

72.0000

2

2

D2873-043

Nut Plate Assembly

**

EN 15-06-02

Location

Loc Qty

Loc Code

2

LG

40

128814

40

LG052

32

127801

2

129732

10

130883

20

D2873-045

Manufactured No

230

Each

35.0000

2

2

D2873-045

Nut Plate Assembly

**

EN 15-06-02

Location

Loc Qty

Loc Code

1

LG052

35

125286

2

127534

13

128896

10

~~131002~~

10

D2894-1

Manufactured No

230

Each

9.0000

1

1

D2894-1

2.75 Support

**

DAS

41

9-89

15-6-5

Location

Loc Qty

Loc Code

1

LG052

9

125251

9

D3190-1

Manufactured No

230

Each

7.0000

2

2

D3190-1

Chaffing Shield

**

DAS

41

9-89

15-6-5

Location

Loc Qty

Loc Code

2

LG053

7

129524

7

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Work Order ID: 132264

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Parent Item: D407-667-205

D407-667-205

Parent Item Name: Aft Crosstube - High 407

Start Date: 5/5/2015

Required Date: 5/5/2015

Start Qty: 1.00

Required Qty: 1.00

D3595-063-450

Manufactured No

230

Each

112.0000

2

2

DAS

41

9-89

15-6-5

D3595-063-450

Rubber Cushion 0.63" wide x 4.50" Long

**

Location

Loc Qty

Loc Code

FG

22

129907

10

131013

6

88422

6

LG050

29

131013

29

LG051

61

115780

11

131875

50

2

MS20601-AD4W8

Purchased

No

230

Each

310.0000

14

14

MS20601-AD4W8

RIVET

**

14 CRB-06-02

Location

Loc Qty

Loc Code

ST308

310

M128650

110

M132107

200

MS21920-22

Purchased

No

132256

230

Each

74.0000

4

4

DAS

41

9-89

15-6-5

MS21920-22

Clamp

**

Location

Loc Qty

Loc Code

LG050

74

M128636

3

M130822

2

M132045

69

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Parent Item Name: Aft Crosstube - High 407

132264

D407-667-205

Start Date: 5/5/2015

Required Date: 5/5/2015

Start Qty: 1.00

Required Qty: 1.00

MS21920-25

Purchased

No

230

Each

84.0000

2

2

DAS

41

9-89

15-6-5

MS21920-25

Clamp

**

2

Location

Loc Qty

Loc Code

FG

10

120920

10

LG050

70

M130400

10

M131367

3

M131856

17

M132169

40

Return2015

4

M131367

4

NAS1149D0563J

Purchased

No

280

Each

1,255.000

18

18

NAS1149D0563.J

Washer

**

DAS

27

9-89

DAS

JUN 08 2015

DAS

02

9-89

DAS

6

9-89

Location

Loc Qty

Loc Code

GA

130

m125807

130

ST260a

949

m130799

63

m132035

886

ST269

156

m128257

156

ST271

20

m131026

20

18

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D407-667-205

Start Date: 5/5/2015

Required Date: 5/5/2015

Start Qty: 1.00

Required Qty: 1.00

AN5-10A

Purchased

No

250

Each

251.0000

10

10

AN5-10A

BOLT

DAS
02
9-89

DAS
6
9-89

Location

Loc Qty

Loc Code

GA

51

122800

51

ST299A

50

132189

50

ST338

150

M131624

150

**

DAS
27
9-89

DAS
26
9-89

AN5-32A

Purchased

No

250

Each

223.0000

4

4

AN5-32A

Bolt

DAS
02
9-89

DAS
6
9-89

Location

Loc Qty

Loc Code

ST299A

207

m130716

7

m131139

100

m132189

100

ST336

16

m128403

7

m128634

9

**

DAS
27
9-89

DAS
26
9-89

AN5-34A

Purchased

No

250

Each

67.0000

4

4

AN5-34A

Bolt

DAS
02
9-89

DAS
6
9-89

Location

Loc Qty

Loc Code

ST336

67

m128634

67

**

DAS
27
9-89

DAS
26
9-89

JUN 08 2015

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D407-667-205

Parent Item Name: Aft Crosstube - High 407

Start Date: 5/5/2015

Required Date: 5/5/2015

Start Qty: 1.00

Required Qty: 1.00

MS21042L5

Purchased

No

250

Each

537.0000

4

4

MS21042L5

Nut

DAS
26
9-89

DAS
27
9-89

JUN 08 2015

DAS
Q2
9-89

DAS
6
9-89

Location

Loc Qty

Loc Code

GA	150
m127813	150
ST305	387
m127813	54
m130388	12
m131340	21
m132123	300

4

DQA: AK Date: 15/06/11QA Closed: RPM Date: 15/06/11

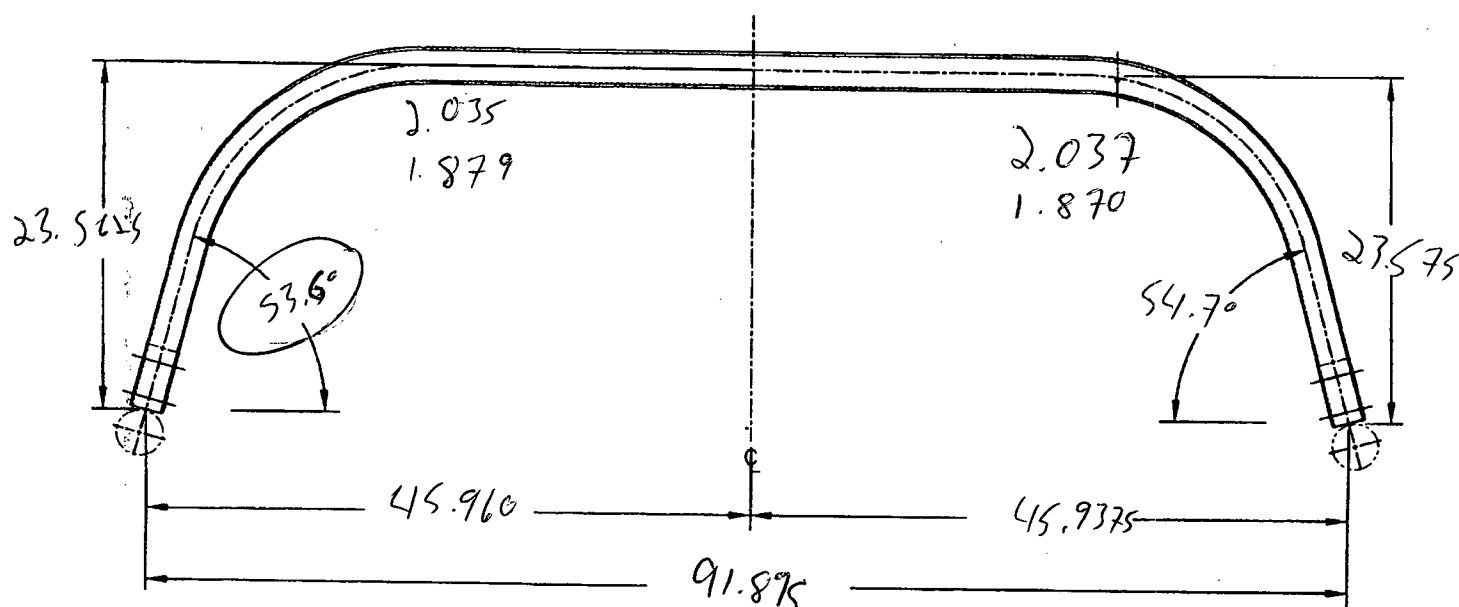
WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only ☐

Work Order: <u>132264</u> Part No. <u>D407-667-205</u> NCR No. <u>15-5079</u>	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☒ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS			
		Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐	Cross tube ☒ Small Fab ☐ Finishing ☐ Composite ☐	Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐	Engineering ☐ Quality ☐ Other ☐
Date: <u>15/5/26</u>	Step #: <u>120</u>	QTY Effective: <u>(1)</u>		MRB (QSI042) Approval <u>DAS</u> <u>12</u> <u>9-89</u>	
Description Work Order Deviation		Disposition		Completed By <u>FL</u> <u>15/05/27</u>	
Angle under tolerance		Acceptable.		Lead hand / Supervisor Approval Verification <u>[Signature]</u> <u>15-05-27</u>	
				QC <u>[Signature]</u> Coordinator Approval <u>9-89</u> MAY 27 2015	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☒ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☒ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
		OTHER: ☐			

DART AEROSPACE LTD		Work Order: 132264
Description: Crosstube High Aft (407)		Part Number: D407-667-205
Inspection Dwg: D407-667-245	Rev: 46 <i>[Signature]</i>	Page 1 of 1

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	45.79	46.05
Angle	54	56
Total Span	91.58	92.100
Bending Passes	6	--
Crushing	--	6%



	Side A	Side B
Bending Passes	27	27
Crushing	3.9%	4.2%
Comments		

QC15 Inspection	9-89	<i>manil</i>
Date	15/05/2006	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.06.22	Dwg Rev updated	KJ	
C	11.08.22	Dimensions updated	KJ	
D	11.09.30	Dimensions updated	KJ	
E	12.04.16	Added bending, crushing dimensions	KJ	<i>[Signature]</i>

Item	QTY	PART NUMBER	DESCRIPTION
	X	D407-667-245	CROSSTUBE ASSEMBLY (407 HIGH AFT)
1	1	D6011-115	CROSSTUBE
2	2	D2873-043	NUT PLATE
3	2	D2873-045	NUT PLATE
4	1	D2894-1	SUPPORT
5	2	D3190-1	CHAFING SHIELD
6	2	D3595-063-430	RUBBER CUSHION
7	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
8	4	MS21920-22	CLAMP
9	2	MS21920-25	CLAMP (OR MS21920-24)
10	AR	SCOTCH-WELD DP460	EPOXY ADHESIVE, 3M SCOTCH-WELD
11	AR	PROSEAL 890	SEALANT

GENERAL NOTES:

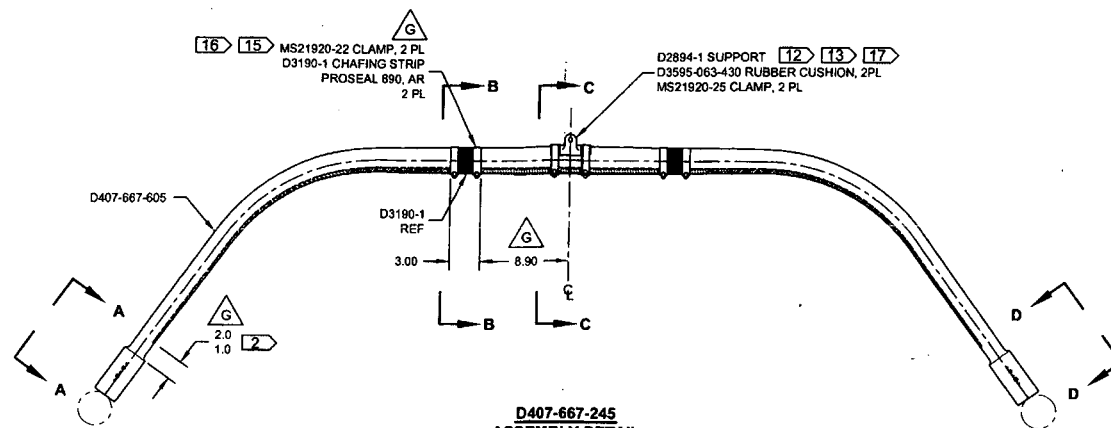
- MATERIAL: MANUFACTURED FROM D6011-115
FINISHED LENGTH = 112.91±0.020
- FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT CROSSTUBE PER DART QSI 005 4.2
FOR HATCHED AREAS (ZN A6-2), MASK AS REQUIRED
TO APPLY PRIME AND APPLY CLEAR COAT ONLY
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-245" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- WEIGHT: 27.7 lbs
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- INSTALL D2894-1 CENTER SUPPORT USING A 0.04" TO 0.07" THICK LAYER OF SCOTCH-WELD DP460 PER QSI 015. LET CURE FOR 24 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- INSTALL MS21920-25 CLAMPS WITH D3595-063-430 RUBBER CUSHIONS TO SECURE D2894-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBE SUPPORT.
NOTE: MS21920-24 CLAMPS CAN BE USED TO ACCOMMODATE VARYING DIAMETERS. ENSURE THERE IS A MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- APPLY A THIN COAT OF PROSEAL 890 ON INSIDE CONCAVE SURFACE OF D3190-1 CHAFING SHIELDS AND LET CURE PER MANUFACTURER'S INSTRUCTIONS. INSTALL PROSEALED D3190-1 CHAFING SHIELDS ONTO CROSSTUBE BY APPLYING A THIN COAT OF PROSEAL 890 ONTO CROSSTUBE. BE SURE TO ELIMINATE ANY AIR GAPS.
- INSTALL D3190-1 CHAFING SHIELDS SO THAT OVERLAP IS 50 TO 70 DEGREES FROM BOTTOM OF CROSSTUBE OPPOSITE D2894-1 SUPPORT.
- TORQUE CLAMPS 80 TO 100 IN-LB. TORQUE CLAMPS ON D3190-1 CHAFING SHIELD 40 TO 50 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVE HAS CURED FOR 24 HOURS.

RELEASED

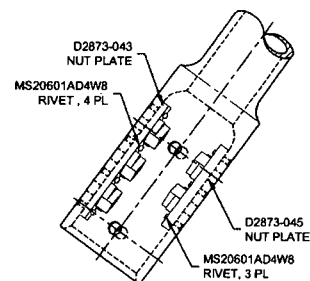
2015 APR 09

47 ECU 15-557

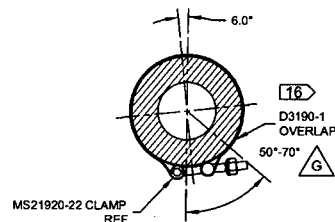
G	INCORP. DEO'S D407-667-245-F1/F2 (ZN D8-1, A8-1, D5-2, B6-2, C6-2); 8.90 WAS 8.53 (ZN D5-2); TORQUE REDUCED FOR CHAFING SHIELD (ZN A8-1); FINISH REVISED TO ALLOW MANUFAC. FLEXIBILITY (ZN C8-1)	RF	15.03.20
F	REFORMAT NOTES TO NEW STANDARDS (ZN B8-1); RELOCATED FLAG # 6 (ZN A8-3) PER NCR 210; REMOVED REF. & ADD TOLERANCES (ZN C6-3, C4-3 & D2-3)	RF	08.11.06
E	8.02 AND 8.53 WERE 8.40 AND 8.90 (ZN D5-2); REORGANIZED VIEWS AND REFORMATED DRAWING TO CURRENT STANDARDS. REASONS: CLAMPS MOVED 0.375 TOWARD CL TO ELIMINATE INTERFERENCE WITH AIRCRAFT MOUNTS. REFERENCE: PAR#08-21 AND ECU#1225	MB	08.07.24
D	ADD VIEW FOR OEM SKID HOLES, ROTATE ORIENTATION OF CLAMPS SECTION F-F, REMOVE -851 ABRASION STRIP, ADD MAGNOBOND 6398, ADD CUSHION	PH	07.02.07
C	ADD HOLES AND NUT PLATES FOR COMPATIBILITY WITH BHT/AA SKIDTUBES	PH	05.07.26
B	ADD CHAFING SHIELD	CP	03.05.21
A	NEW ISSUE	CP	02.05.13
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	RF	DRAWING NO.	REV. G
MFG. APPR.	RF	D407-667-245	SHEET 1 OF 4
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	CROSSTUBE ASS'Y (407 HIGH AFT)	NTS
DATE	15.03.20	COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS COVENANT THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



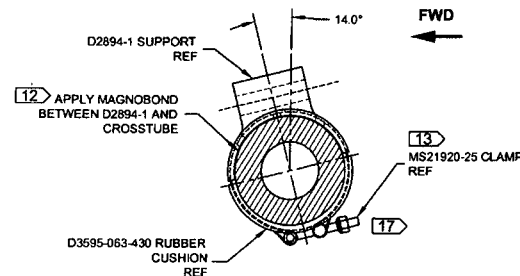
D407-667-245
ASSEMBLY DETAIL
(VIEW LOOKING FWD)



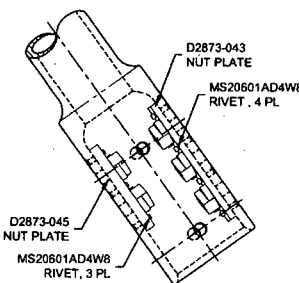
VIEW A-A CUFF DETAIL
SCALE 4X



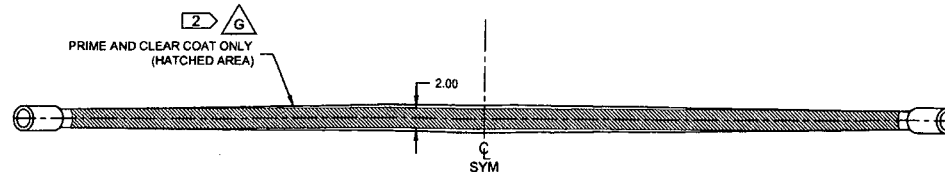
SECTION B-B
SCALE 4X, 2PL



SECTION C-C
SCALE 4X



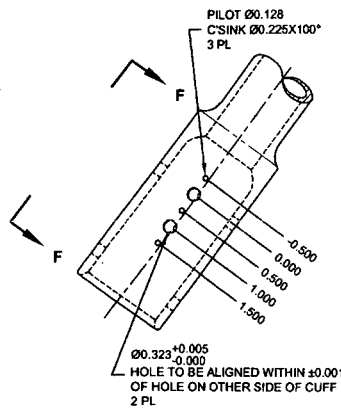
VIEW D-D CUFF DETAIL
SCALE 4X



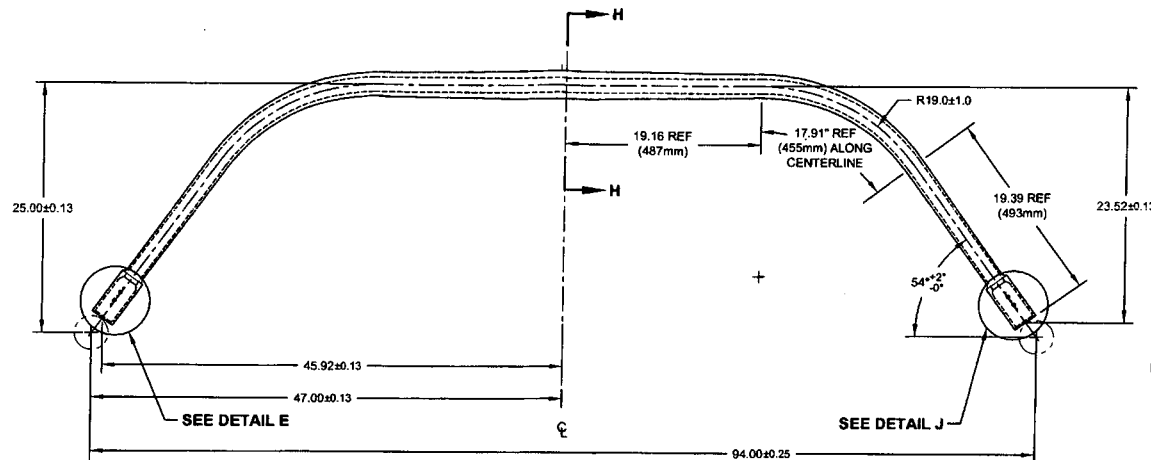
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2015 APR 09

DESIGN	9P	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	9P	DRAWING NO.	REV. G
MFG. APPR.	9P	D407-667-245	SHEET 2 OF 4
APPROVED	9P	TITLE	SCALE
DE APPR.	9P	CROSSTUBE ASS'Y (407 HIGH AFT)	NTS
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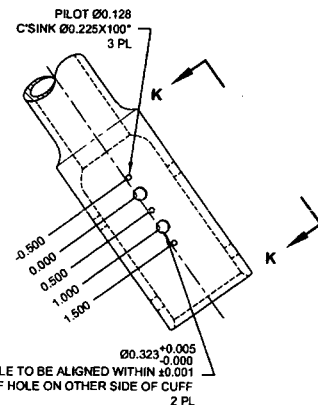
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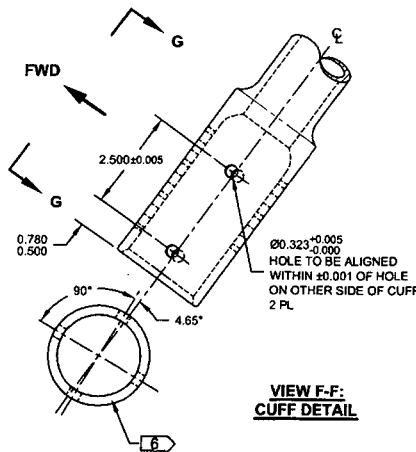
DETAIL E
SCALE 4X
(VIEW LOOKING FWD)



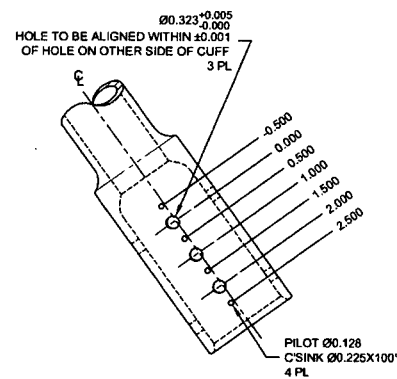
D407-667-605
BENDING AND DRILLING DETAIL
(VIEW LOOKING FWD)



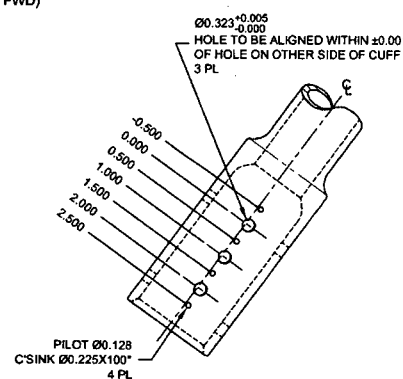
DETAIL J
SCALE 4X
(VIEW LOOKING FWD)



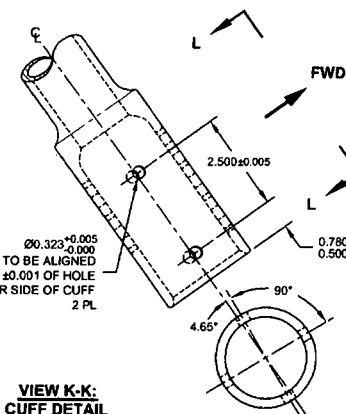
VIEW F-F:
CUFF DETAIL



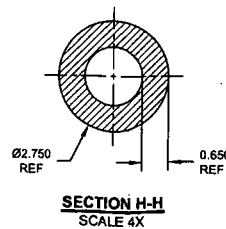
VIEW G-G
(VIEW LOOKING AFT, ROTATED)



VIEW L-L
(VIEW LOOKING AFT, ROTATED)



VIEW K-K:
CUFF DETAIL



SECTION H-H
SCALE 4X

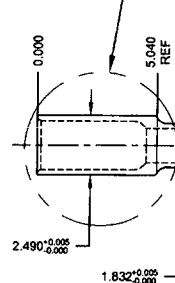
RELEASED

2015 APR 09

DESIGN	40	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	40	DRAWING NO.	REV. G
MFG. APPR.	40	D407-667-245	SHEET 3 OF 4
APPROVED	40	TITLE	SCALE
DE APPR.	40	CROSSTUBE ASSY (407 HIGH AFT)	NTS
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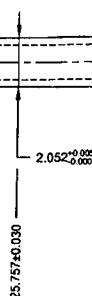
SEE DETAIL M



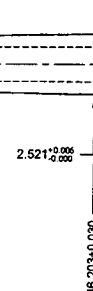
R100.0 TRANSITION
BETWEEN TAPERED
SECTIONS



R100.0 TRANSITION
BETWEEN TAPERED
SECTIONS



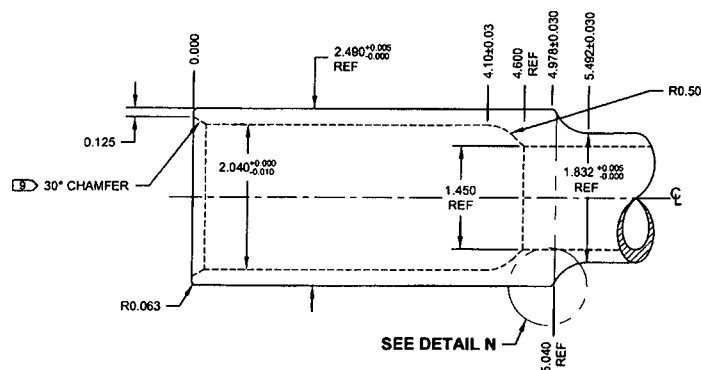
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BETWEEN TAPERED
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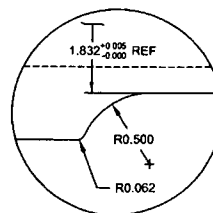
SEE DETAIL P

TAPER UNIFORMLY FROM
2.633 +0.005/-0.005 REF THROUGH TO 2.790 +0.005/-0.005 REF
RUNNING OFF PART

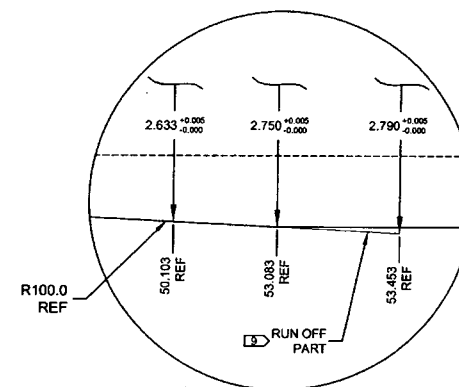
D407-667-245 MACHINING DETAIL



DETAIL M: CROSSTUBE CUFF
SCALE 3X



DETAIL N: CUFF TRANSITION
SCALE 2X



DETAIL P: TAPER RUN-OFF
NOT TO SCALE

RELEASED

2015 APR 09

DESIGN	40	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	40	DRAWING NO.	REV. G
MFG. APPR.	40	D407-667-245	SHEET 4 OF 4
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Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO28657**

Purchase Order Date 6/2/2015

PO Print Date 6/2/2015

Page Number 1 of 2

Order From :

VC-SKY001

SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

Ship To : DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 905-678-5636

Ship To Contact

Ship To Phone

Ship Via: Delivered

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax #

10127-2607

Terms

Net 30

Currency

CAD

FOB

FCA - (Free Carrier)

Line Nbr	Reference Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
Line Comments		Promise Date					
Delivery Comments							
1	132264	D407-667-205 CROSSTUBE	6/2/2015		1.00	\$208.00	\$208.00
			Yes				
			6/2/2015				
LIQUID PENETRANT INSPECTION AS PER QSI 038 OR LPI AS PER ASTM 1417 LEVEL 2			SPRS-06-02				
						Line Total:	\$208.00
2	133045	D407-667-205RLC CROSSTUBE	6/2/2015		1.00	\$208.00	\$208.00
			Yes				
			6/2/2015				
LIQUID PENETRANT INSPECTION AS PER QSI 038 OR LPI AS PER ASTM 1417 LEVEL 2							
						Line Total:	\$208.00

Note:

6/2/2015



skyservice
Air travel. Evolved.

NDT Work Order

Sky Service F.B.O. Inc.

DOT APP 53-89 / EASA 145.7142 / BDA AMO 385

WO #: YYZ

70329

Customer:

DART AEROSPACE

Dept: NDT YYZ

Reference: P028057

Make:

Model:

Reg:

A/C SN:

TSN:

CSN:

TSO:

Tail#:

Task: ☒ Scheduled ☐ Unscheduled ☐ A.O.G. ☒ P.T. ☐ M.T. ☐ E.T. ☐ U.T. ☐ R.T.

Work Required:

CARRY OUT NDT ON THE FOLLOWING AFT NOSE TUBES - D407-667-205

① WORK ORDER ID 132264

② WORK ORDER ID 133044

③ WORK ORDER ID 133045

Action Taken:

Date:

Initial/Stamp:

LIQUID PENETRANT INSPECTION
CARRIED OUT ON ITEMS LISTED
ABOVE.

① W.O. 132264 = NO CRACKS FOUND

1 JUN 2015



② W.O. 133044 = NO CRACKS FOUND

1 JUN 2015



③ W.O. 133045 = NO CRACKS FOUND

1 JUN 2015



BLACK LIGHT = SIN T-20990N

SAS 06-02

PENETRANT = ARPROX 970 P25E

BATCH #
TP6-1408G

EXP DUE
30 SEP 2016

I certified that the maintenance described above has been performed with the applicable standard of airworthiness.

Signature:

ACA/SCA Stamp

Date:

Name: GARY SMITH



01 JUN
2015